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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,720	12/30/2004	Chishio Hosokawa	28955.1044	7491
27890	7590	12/31/2007		
STEPTOE & JOHNSON LLP 1330 CONNECTICUT AVENUE, N.W. WASHINGTON, DC 20036				
			EXAMINER NGUYEN, TRAM HOANG	
			ART UNIT 2818	PAPER NUMBER
			MAIL DATE 12/31/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/519,720	<b>Applicant(s)</b> HOSOKAWA ET AL.	
	<b>Examiner</b> Tram H. Nguyen	<b>Art Unit</b> 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2007.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims 3-8, 12-15

- 4) ☒ Claim(s) 1,2,9-11,16 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) 3-8, 12-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,9-11,16 and 18-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                                     |                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                         | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/08/2007</u> . | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

In response to the communications dated 11/08/2007, claims 1, 2, 9-11, 16, and 18-20 are pending in this application.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

***Claims 1,2,9,10,11,16,18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosokawa (US 6,379,824), in view of Bach et al. "Determination of Ionization Potentials of Aluminum Oxides via Charge Transfer" Chemistry Division/Code 6110, Navel Research Laboratory, Washington DC 20375-5000***

***(Received: April 24, 1991; In Final Form: May 30, 1991), and further in view of  
Mishima (JP 2002056976)***

Regarding **claim 1**, Hosokawa discloses an organic luminescence device comprising: an anode (see fig. 1, item 10); an insulating or semiconductive inorganic thin film layer (12 is made of aluminum oxide, see col. 4, lines 48-55) having an energy gap of 2.7 eV or more (It is well known in the art that the energy gap of aluminum oxide,  $\text{Al}_2\text{O}_3$  is 5 eV); an organic compound layer (14) comprising one or more layers which comprise at least an organic emitting layer (col. 4, lines 5-6); and a cathode (16).

However, Hosokawa differs from the claimed invention by not showing aluminum oxide having an ionization energy of more than 5.6 eV.

Bach et al. show the ionization potential of aluminum oxide,  $\text{Al}_2\text{O}_3$  is  $8.9 \pm 0.2$  eV (see table II).

Since both Hosokawa and Bach et al. teach an aluminum oxide compound, it would have been obvious to have the aluminum oxide of Bach et al. in Hosokawa because it improves the charge transfer characteristics of the device.

Hosokawa and Bach et al. do not teach at least one of the layers containing an ortho-metallized metal complex. However, Mishima teaches an organic luminescent device having an organic layer made of ortho-metallized metal complex (see Solution). Therefore, it would have been obvious to one having ordinary skills in the art at the time the invention was made to include one of the layer containing an ortho-metallized metal complex in the organic luminescence device as taught Mishima in the device of

Hosokawa and Bach et al. in order to have high brilliance and excellent luminous efficiency.

Regarding **claim 2**, Hosokawa and Mishima disclose all the limitation of the claimed invention for the same reasons as set-forth above. Besides, Hosokawa teaches the inorganic thin film layer comprises one or more metals or compounds selected from metals, metal calcogenides, oxynitrides, carbides, nitrides, silicides and borides (see col. 4, paragraphs 9 and 10).

Regarding **claim 9**, Hosokawa and Mishima disclose all the limitation of the claimed invention for the same reasons as set-forth above except for the metals are two or more metals comprising one or more metals selected from the following A group; and one or more metals selected from the following B group; A group: In, Sn, Ga, Si, Ge, Zn, Cd, Mg, Al, Ta and Ti; B group: metals having a work function of 4.5 eV or more. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the metals are two or more metals comprising one or more metals selected from the following A group; and one or more metals selected from the following B group; A group: In, Sn, Ga, Si, Ge, Zn, Cd, Mg, Al, Ta and Ti; B group: metals having a work function of 4.5 eV or more, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. In re Leshin, 125 USPQ 416.

Regarding **claim 10**, Hosokawa and Mishima disclose all the limitation of the claimed invention for the same reasons as set-forth above except for the metals in the B

group are atoms belonging to any one of the groups IIIB, IVB, VB, VIB and VIIB in the periodic table (long period type). However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the metals in the B group are atoms belonging to any one of the groups IIIB, IVB, VB, VIB and VIIB in the periodic table (long period type), since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. In re Leshin, 125 USPQ 416.

Regarding **claim 11**, Hosokawa and Mishima disclose all the limitation of the claimed invention for the same reasons as set-forth above except for the metals in the B group are Au, Ni, Cr, Ir, Nb, Pt, W, Mo, Ta, Pd, Ru, Ce, V, Zr, Re, Bi and Co. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the metals in the B group are Au, Ni, Cr, Ir, Nb, Pt, W, Mo, Ta, Pd, Ru, Ce, V, Zr, Re, Bi and Co, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. In re Leshin, 125 USPQ 416.

Regarding **claim 16**, Hosokawa and Mishima disclose all the limitation of the claimed invention for the same reasons as set-forth above. Besides, Hosokawa teaches the inorganic thin film layer has a hole-injecting property (see col.4, paragraph 7).

Regarding **claim 18**, Hosokawa and Mishima disclose all the limitation of the claimed invention for the same reasons as set-forth above. Besides, Mishima teaches the ortho-metallized metal complex is an iridium complex (see Mishima: Solution).

Regarding **claim 19**, Hosokawa and Mishima disclose all the limitation of the claimed invention for the same reasons as set-forth above except for the organic emitting layer comprises a polymer compound as a host material. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include the organic emitting layer comprising a polymer compound as a host material in the organic luminescence structure as taught by Hosokawa in order to provide a good bondability.

Regarding **claim 20**, Hosokawa and Mishima disclose all the limitation of the claimed invention for the same reasons as set-forth above except for the claimed organic luminescence device is arranged on the plastic substrate. However, it would have been obvious to one having ordinary skill in the art at the time invention was made to include a plastic substrate in the organic luminescence device as disclosed by Hosokawa since it was well-known in the art that the plastic substrate is one of preferable substrate material due to its characteristics of good mechanical strength, less permeability of moisture and oxygen.

### ***Conclusion***

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

Application/Control Number:  
10/519,720  
Art Unit: 2818

Page 7

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tram Hoang Nguyen whose telephone number is (571)272-5526. The examiner can normally be reached on Monday-Friday, 8:30 AM – 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Loke can be reached on (571)272-1657. The fax numbers for all communication(s) is (703)872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-1625.

THN  
Art Unit 2818  
\*\*\*

STEVEN LOKE  
SUPERVISORY PATENT EXAMINER

A handwritten signature in cursive script, appearing to read "Steven Loke", written in black ink.